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**Revision of the Palaearctic forms of the genus *Paratalanta* MEYR.
(*Lepidoptera*, *Pyralidae*)¹**

Przegląd palearktycznych form rodzaju *Paratalanta* MEYR. (*Lepidoptera*, *Pyralidae*)

Ревизия палеарктических форм рода *Paratalanta* MEYR. (*Lepidoptera*, *Pyralidae*)

[Pl. XVII—XX and 1 map in text]

In the material collected by one of the authors (R. J. WOJTUSIAK) during the Polish Expedition to the Central Caucasus in 1935 a specimen of *Pyralidae* was found belonging to the genus *Paratalanta* MEYR. As it exactly resembled the description and figure on p. 251 in HAMPSON's revision of the subfamily *Pyraustinae* and the family *Pyralidae* (1898), it was at first identified as *Paratalanta ussurialis* (BREM.). This specimen was caught on 15. VIII. 1935 in the vicinity of Kara-su, in Balkaria, in the valley of Bezengi-Tcherek, 1000 m above sea-level. It was flying in a small glade in a forest very rich in plants of an almost subtropical character, among nettles (*Urtica dioica* L.) 2 m high. This was especially interesting as the first occasion on which a representative of this genus, hitherto known only from Palaearctic Asia, was caught in

¹) The term „form“ is used by the authors in the present paper as a general designation for species, as well for subspecies or geographical varieties belonging to the same genus, and not as a definite taxonomic unit.

Europe. The border line between Europe and Asia runs along the Main Range of the Caucasus, and this Pyralid was caught on the northern, i. e. on the European, slopes. Representatives of the genus *Paratalanta* MEYR. had previously been known only from Palaearctic Asia, namely from the Near and Far East, and from the Altai.

Some years later by the courtesy of Mr. W. MICHERDZIŃSKI the authors were able to obtain some specimens of males of *Paratalanta ussurialis* (BREM.) from the Amur, East Asia; they were acquired from the firm BANG-HAAS in Dresden, and provided with RADDE's labels. Upon comparing the specimen from the Caucasus with those from the Amur it appeared that they represent different forms. Still later the authors received two other specimens of *Paratalanta* MEYR. from Manchuria, which also proved to be different from that from the Caucasus. The authors have also had the opportunity of reviewing all the specimens of Manchurian origin of this genus which were in the collection of one of the authors (S. TOLL). Two distinctly different forms could be distinguished among the males as well as among the females. The same was found in the collection of the British Museum (Nat. Hist.) in London, which R. J. WOJTUSIAK had opportunity to examine by courtesy of Dr. TAMS. In the Natural History Museum in Budapest, and in the Zoological Institute of the Polish Academy of Sciences in Warsaw, there are some specimens from Eastern Siberia, which also show distinct differences. Dr. H. ZERNY, director of the Zoological Department of the Naturhistorisches Museum in Vienna, when consulted on this matter, informed the authors that in the collection of that Museum there are some specimens of *Paratalanta* MEYR. determined as *P. ussurialis* (BREM.) and *P. cultralis amurensis* (ROM.). The distinction between the two forms and the restoration of their former taxonomical significance were given by ZERNY in a publication of 1914. HAMPSON (1899), as well as STAUDINGER and REBEL (1901), had previously accepted only one species *Paratalanta ussurialis* (BREM.), considering all other forms as synonyms of that described by BREMER (1864). The difference of opinion in various authors as to the identification of a number of forms of the genus *Paratalanta*

MEYR. and the evident variety of forms in the collections of one of the authors of the present paper (S. TOLL), and the museums mentioned above, called for a closer revision of this genus. It is characterized by a distinct sexual dimorphism. Our examination was limited at first to a determination of the male forms. The females were examined by one of us (S. TOLL) who found in his material some females belonging to a new species of which the males are still unknown.

The history of the description of the different forms belonging to the genus *Paratalanta* MEYR. is as follows:

In 1864 BREMER, working on the fauna of *Lepidoptera* of Eastern Siberia and of the Amur region, described a small Pyralid which was rather similar in appearance to *Psammotis hyalinalis* HBN.; he gave it the name *Botyodes ussuralis* (BREM.) and added a coloured drawing of it (op. cit., tab. VI, fig. 6). The original description of this form runs as follows:

„Caput flavescens palpis fuscis; thorax flavescens humeris ferrugineo-fuscis; abdomen album apice flavescenti-fusco“.

„Alae supra flavescens, posticae dilutiores, ciliis flavescens-fulvis; fascia marginali (posticarum tenui) strigaeque posteriore communi, sinuata, fuscis lineaque flavescens ante cilia; — alae anticae striga anteriore, costa (saepe interrupta) maculaque costali subquadrata fuscis“.

„Alae subtus sicut pagina superiore, lineis transversis fasciaeque marginali posticarum obsoletissimis. 30—31 m“. (Obviously mm and not m!).

„Diese rein tropische Form wurde von MAACK in mehreren Exemplaren am Ussuri oberhalb der Ema-Mündung, Mitte Juli entdeckt“ (op. cit., p. 68).

The types are probably in the Zoological Institute of the Academy of Sciences of the U. S. S. R. in Leningrad. No very precise data on the ecological conditions in which this species occurs were given by BREMER.

O. STAUDINGER (1867) found in the collection of O. GRUNER a male of a similar Pyralid which he described as *Botys centralis* STGR. Only one well-preserved specimen was brought to him by KINDERMANN from the Caucasus. Unfortunately the author did not give the exact locality in which it had been caught. The original description of this new form is as follows:

„*Botys cultralis*. Alis subpellucidis flavidis, anterioribus longe acuminatis, costae basi, puncto ante, macula post medium, striga post eam undulato-angulata fasciaque antemarginale fusciscentibus; posteriorum margine medio subsinuato, striga media fasciaque marginali fusciscentibus. 35 mm. ♂“ (op. cit., p. 108).

In continuation, STAUDINGER reports on this species: „Die äusserst schmalen, spitzen Vorderflügel und die fast doppelt so breiten dreieckigen Hinterflügel geben diesem Thiere eine eigenthümliche Gestalt und lassen es mit keiner anderen *Botys* verwechseln. Die Grundfarbe ist ein Blassgelb, auf den Flügeln halb durchscheinend. Die Palpen sind nach aussen rauchbraun, ebenso die Vorderschienen, während sonst die Füsse weisslich sind. Auf den sehr langen spitzgezogenen gelben Vorderflügeln sind folgende rauchbraune Zeichnungen: der Vorderrand etwa bis zur Mitte, ein grosser Fleck am Schluss der Mittelzelle, ein kleiner Punkt in der Mitte der Mittelzelle, am Vorderrande anhängend, eine unscheinbare Basalquerlinie, eine gebogene Linie hinter der Mitte, die auf Rippe 2 und 7 einen spitzen Winkel nach innen macht, und eine breitere Aussenrandbinde, welche vor der Flügelspitze aufhört. Vor den gleichfalls bräunlichen Franzen befindet sich eine feine (doppelte) Limballinie. Die sehr breiten, noch durchsichtigeren Hinterflügel haben das Ende der Mittelzelle fein braun begrenzt, und dicht dahinter eine eigenthümlich gezeichnete Mittellinie, die nach oben einen vollständigen nach aussen gekehrten Halbkreis bildet und dann in gerader Linie nach dem Innenrande zu verläuft. Ausserdem befindet sich hier eine braune Randbinde, die nur durch feine Linie gelber Grundfarbe von den dunkleren Franzen getrennt wird. Die Unterseite aller Flügel zeigt die Zeichnungen der Oberseite, ist aber viel lichter, gelblich-weiss“ (op. cit., pp. 108—109).

In 1872 LEDERER described a female as a new species, now placed in the genus *Paratalanta* MEYR. under the name *Botys labutonalis* LED. The description is based on two females caught by HABERHAUER in the vicinity of Astrabad, Persia. The original description runs as follows:

„Alis laete stramineis, anticis vitta subcostali, angusta, abbreviata, strigis duabus (altera ante punctum, altera post

venulum fuscum vittae adhaerentem) fasciaque antemarginali cinereo-fuscis; posticis dilutioribus, striga media angulato-arcuata fasciaque antemarginali cinereo-fuscis. 32 mm. ♀ (Taf. II, fig. 9, ♀)“.

„Bei *Hyalinalis*: Körper oben strohgelb, unten nebst den Beinen weissgelb, Palpen horizontal, in mehr als Kopfeslänge vorstehend, aussen braun bestäubt, Fühler bis zu $\frac{3}{4}$ des Vorderrandes reichend, Hinterleib schlank, den Innenwinkel $\frac{1}{4}$ überragend“.

„Vorderflügel lebhaft strohgelb, Vorderrand und Saum bräunlich; runde Makel nur als ein kleiner dunkler Punkt, Nierenmakel nagelförmig. Beide Querlinien graubraun, die innere nahe an der Basis, die äussere um die Nierenmakel auswärts gebogen, dann gerade zum Innenrande; eine ihr parallele braune Binde theilt das Saumfeld in zwei ziemlich gleiche Theile und ist nach aussen heller verwaschen. Hinterflügel etwas weniger lebhaft gelb mit Fortsetzung der zweiten Querlinie und Saumbinde. Unterseite blasser, als die obere“ (op. cit., p. 22).

ROMANOFF (1887) in his research on Transcaucasian and Transcaspian Lepidoptera, gives a new locality for *Botys cultralis* STGR., i. e. Trans-Caspia (Geok-Tepe), and the southern foothills of the Caucasus, (Borzhom, Lagodekhi). He assumed *Botys labutonalis* LED. to be the female of *Botys cultralis* STGR. Having at his disposal a rich material from Eastern Asia as well as from Persia and Transcaucasia, he analysed all previous descriptions in the following manner:

„Je me vois obligé en parlant de cette espèce originale d'en mentionner une autre, qui ne vit que dans le territoire de l'Amour: c'est nommément *Botyodes Ussurialis* BREM. Le genre *Botyodes* est basé sur des indices fort insignifiants, parmi lesquels la coupe caractéristique des ailes du mâle est le plus évident. STAUDINGER décrivit sa *Cultralis* du Caucase apparemment rien qu'après une femelle et la prit pour *Botys*. LEDERER fit de même avec la *Labutonalis*, la coupe des ailes étant la coupe ordinaire des espèces du même genre, comme p. ex. chez *Hyalinalis*. Dans la suite STAUDINGER réunit sa *Cultralis* à *Botyodes Ussurialis* BREM. et donna la priorité à celle-ci“.

„Après avoir soigneusement revu mes matériaux, un ♂ reçu en 1861 de M. BREMER, auteur de *Bot. Ussurialis*, se trouva différent de *Cultralis-Labutonalis* ainsi que des ♂♂ à ailes pointues de l'Amour. La description et le dessin d'*Ussurialis* de BREMER accordent parfaitement avec mon ♂ de cette espèce. Je ne puis cependant encore décider si BREMER a par hasard confondu *Cultralis*, qui paraît être plus fréquente, avec *Ussurialis*. *Bot. Ussurialis* ♂ a les ailes antérieures un peu plus larges, moins allongées et le bord postérieur légèrement arrondi, du moins jamais rétréci comme chez *Cultralis*“.

„Les ailes postérieures sont aussi bien moins échancrées. Le dessin des bandes diffère peu chez les deux espèces; chez *Ussurialis* il est cependant plus fin et la ligne transversale externe est assez sensiblement interrompue au milieu. Elle n'est que très peu marquée sur les ailes postérieures. Par contre la tache cellulaire, la subcostale jusqu'à celle-ci, ainsi que le bord postérieur sont foncés et tranchent assez bien avec le fond jaune des ailes. Le bord postérieur des ailes postérieures est à peine de moitié aussi large que chez *Cultralis*. En dessous le dessin des bandes n'est pour ainsi dire pas visible, si ce n'est sur les ailes antérieures, où l'on en voit le commencement. Ce n'est qu'un peu au-dessous de l'apex que le bord externe des ailes postérieures a une teinte plus foncée. Les franges, des deux ailes sont jaune clair; chez *Cultralis* elle sont grises jaunâtres vers la base. La ♀ de *Bot. Ussurialis* paraît ne pas être connue“.

„Après avoir établi les principales différences entre *Cultralis* et *Ussurialis*, il me reste encore à faire quelques remarques sur *Cultralis*“.

„*Botys Cultralis-Labutonalis* de la Transcaucasie et de la Perse septentrionale ont été suffisamment décrites par MM. STAUDINGER et LEDERER; mais à en juger par la description et le dessin, il n'est question que de la femelle. Sur les ailes antérieures très longues et étroites du ♂ le dessin des taches et des bandes est plus marqué et pas interrompu, et le bord extérieur brun-gris-noirâtre bien plus large que chez *Ussurialis*. L'apex cependant est de même jaune et vers l'intérieur cette teinte passe insensiblement au noir-brun. Chez la ♀ le noir-brun n'existe qu'en bande médiocrement large,

oscillée et dentale vers l'intérieur. Le fond jaune au-delà de celle-ci va jusqu'à la marge“.

„J'aimerais citer comme variété locale de celle-ci une espèce assez répandue dans le territoire de l'Amour, espèce, qui se trouve maintenant dans les collections en général sous le nom d'*Ussurialis*. Chez cell-ci les ♂♂ et les ♀♀ on la coupe des ailes et le dessin analogues à la *Cultralis* caucasienne, cependant avec les modifications suivantes: les écailles jaunes sont moins serrées et les ailes par conséquence plus translucides et d'un gris plus clair; le brun-gris noirâtre des bandes tachetées et de la partie extérieure — plus pâle, les bandes et les taches — moins distinctes et celles-là pour la plupart interrompues. L'apex des ailes antérieures est foncé comme le reste de la partie marginale, qui chez la femelle est foncée en entier, et ce n'est qu'à la marge même qu'elle passe peu-à-peu au brun. C'est le nom d'*Amurensis* que je donne à cette variété“ (op. cit., pp. 30—32).

From the descriptions, quoted above, it is evident that ROMANOFF distinguished two different species of the genus in question, *B. ussurialis* BREM. and *B. cultralis* STGR., and also one geographic variety of the latter species to which he has given the name *B. cultralis* var. *amurensis* ROM. At the same time he writes that „*B. Cultralis*, en général assez rare, vole dans les forêts des régions montagneuses près des ruisseaux et des canaux humides“ (op. cit., p. 32).

In the passage just quoted, attention should be called to ROMANOFF'S opinion that „STAUDINGER described his *cultralis* from the Caucasus on the basis of one female“. From the exact quotation from STAUDINGER'S paper here given it is evident, however, that a male served for the description. The female described by LEDERER as *Botys labutonalis* LED. was therefore conspecific with the male of *B. cultralis* STGR. and now considered as a synonym of the latter species.

In 1890 MEYRICK separated these forms, which had previously been considered as belonging to the genus *Botys* TR. or *Botyodes* BUEN., and established distinct genus *Paratalanta* MEYR. the name which has been kept to the present day both in HAMPSON'S revision (1899) as well as in the catalogue

of STAUDINGER and REBEL (1901). This genus is characterized, according to HAMPSON, by the following features:

„Palpi porrect, extending about the length of head, triangularly scaled; the 3rd joint hidden with hair; maxillary palpi almost filiform; frons rounded; antennae of male ciliated; mid tibiae dilated with a fold containing a tuft of long hair and a fringe of scales; hind tibiae with the outer spurs half the length of inner. Fore wing of male very long and narrow, the outer margin oblique, a strong costal fold on basal half; vein 3 from the fore angle of cell; 4,5 separate: 7 curved and approximated to 8,9. Hind wing of male with the outer margin somewhat excised from vein 3 to near anal angle, which is lobed; the cell short; veins 3, 4, 5 from close to angle; 6, 7 shortly stalked. 7 anastomosing with 8“ (op. cit., p. 251).

HAMPSON (1899), contrary to this predecessors, acknowledged only one species, *Paratalanta ussurialis* (BREM.), considering all other forms as synonyms of this. STAUDINGER and REBEL (1901) represented the same standpoint. ZERNY (1914) thinks that „*Paratalanta ussurialis* BREM. and *cultralis* STGR. (1182) sind, wie bereits CHRISTOPH (?! author's remark) (Mém. Rom. III. p. 30) nachgewiesen hat, spezifisch verschieden und wurden von HAMPSON (Proc. Zool. Soc. London, 1899, p. 251) mit Unrecht vereinigt. Die Abbildungen HAMPSONS (l. c. Fig. 147) gehört zu *cultralis* STGR. *Ussurialis* ist in ihrer Verbreitung auf Ostasien beschränkt, während *cultralis* in der typischen Form in Nordpersien, Armenien und im Altai, in der Form *amurensis* CHR. (l. c. p. 32) im Amurgebiet und nach einer mir vorliegenden ♀ auch in Japan vorkommt“ (op. cit., p. 333).

ZERNY's opinion that CHRISTOPH showed the distinctness of the species *P. ussurialis* (BREM.) and *P. cultralis* (STGR.) in ROMANOFF's „Mémoires sur les Lépidoptères“, III, was probably due to an error, as in that volume the discussion of these forms is found in ROMANOFF's own paper, „Lépidoptères de la Transcaucasie“. CHRISTOPH wrote the next paper in the same volume, and this was probably the cause of the mistaken authorship.

From the above review of the opinions of particular authors, it is evident that as to the genus *Paratalanta* MEYR. there

still exist fairly important uncertainties which can only be solved by a exact examination of all the forms in question.

With this aim we examined the morphology, colouring, and structure of the genital organs of the males which were in our possession. Data relating to the shape and pattern of the wings have also been compared with that of specimens in the collections inspected by one of the authors (R. J. WOJTUSIAK). The preparations of the genital organs of the females and of a male of *Paratalanta cultralis amurensis* (ROM.) and drawings of these were made by the other author (S. TOLL).

It was found that among the males belonging to the genus *Paratalanta* MEYR. there may be clearly distinguished three forms corresponding to those described by BREMER, by STAUDINGER, and by ROMANOFF. Each of these forms is characterized by a different outline and proportion of the wings, and by a somewhat different pattern and colouring (Pl. XVII. a, b, c, d, e, f). The differences in the structure of the genital organs are, however, comparatively insignificant. The relative comparative data are as follows:

The fore wings of *Paratalanta cultralis* (STGR.) (P. XX. a) exhibit the most slender shape, which can most easily be expressed numerically by the ratio of their greatest width, measured from the anal angle of the wing perpendicularly to the anterior margin, to their greatest length, measured from the base of the wing to its apex. It amounts on the average to:

<i>Paratalanta cultralis cultralis</i> (STGR.)	. .	16,8 : 5,8 mm	= 2,9
" " <i>amurensis</i> (ROM.)	. .	18,0 : 6,1 "	= 2,9
" <i>ussurialis</i> (BRÉM.) (Manchu-			
		ria) . . .	14,8 : 6,2 " = 2,4
" "		(Amur) .	14,0 : 5,5 " = 2,5

Differences in the slenderness of the wings appear much more distinctly when we consider the angle formed by a line drawn from the apex of the wing to the fore part of its base, and a line running from the apex to the anal angle of the wing. This amounts to:

<i>Paratalanta cultralis cultralis</i> (STGR.)	31°
" " <i>amurensis</i> (ROM.)	30°

<i>Paratalanta ussurialis</i> (BREM.) (Manchuria)	39—40°
" "	(Amur) 37—38°

• In *P. c. cultralis* (STGR.) and *P. c. amurensis* (ROM.) the angle is smallest, and this why the wings are narrowest in this form. In *P. ussurialis* (BREM.) the angle is greatest and this causes a greater resemblance of the wings of the latter species to those of the representatives of the genera *Pionea* GUEN. or *Pyrausta* SCHRANK.

The hind wings of all three forms show less distinct differences. The corresponding proportions of the greatest length, measured from the base to the apex of the wing, to the greatest width, measured from the anal angle to the anterior margin, amount to:

<i>Paratalanta cultralis cultralis</i> (STGR.)	. . .	10,0 : 9,0 = 1,1
" "	<i>amurensis</i> (ROM.)	. . 11,0 : 10,0 = 1,1
" "	<i>ussurialis</i> (BREM.) (Manchuria)	9,5 : 8,9 = 1,05
" "	(Amur)	. . 9,25 : 8,5 = 1,08

More distinct differences appear when we compare the size of the hind wings in relation to that of the fore wings and their shape. They are largest in *P. ussurialis* (BREM.) from Manchuria; in smaller specimens from the Amur they are also proportionally large. In *P. cultralis cultralis* (STGR.) and *P. c. amurensis* (ROM.) the outer margin of the hind wings shows a distinct bend centrad. In *P. ussurialis* (BREM.) this bend is absent or very slight.

The differences in the ornament and pattern of particular forms are slight. We do not discuss them separately because they have been sufficiently characterized in the original descriptions quoted above.

In the male genital organs there are no distinct differences to be seen (Pl. XVIII. a, b, d, e). The valvae are in all forms rounded and oval, the proportion of width to length varying from 1 : 2,7 to 1 : 3,27. On the outer margin of the valvae at the place where they pass into the sacculus there is a distinct oblique incision, on the margin of which caudad hooklike process is often found. At the point of its greatest convexity the sacculus shows some hairs on the inner side. Approximately

midway along the valvae there is in all forms one pointed clasper rather obliquely retrad. At its base rises a short truncheon-like ampulla (Pl. XVIII. c), mediad on the extended preparation. On its end there are several characteristic scales, ending as in digits and markedly elongated (Pl. XX. e), and numerous setae (Pl. XX. d). In some specimens the clasper proceeds from the very base of the ampulla, which is very short and does not reach outside the valva. In other specimens both clasps of the valvae are more distant from each other and the ampulla is long enough to project beyond the margin of the valva. In still other specimens the conditions are intermediate. If we consider the proportion of the length of the clasper to that of the ampulla measured from its base to the end of the truncheon we obtain ratios varying from 1 : 0,87 to 1 : 1,44.

The uncus is short, broad, acorn-shaped, sometimes pointed at the apex. In all forms it is covered with hairs directed capitad. The anal aperture situated on a long, tubular process which projects beyond the valvae.

The oedeagus is cylindrical and smooth, similar in all forms. At its slightly broadened tip there is a single curved hook, recalling the very similar process in *Psammotis hyalinalis* HBN. (PIERCE F. N. and METCALFE J., 1938).

In other respects also the genital organs of the male approach morphologically those of *Psammotis* HBN. Among the more distinct differences it should be mentioned that in the latter genus the ampulla forms merely a convexity and not a truncheon as in the representatives of *Paratalanta* MEYR. Its shape, however, indicates the near relationship of the two genera.

From this review of the general morphological characteristics, pattern, and colouring in males it is evident that the representatives of the genus *Paratalanta* MEYR., hitherto known, may be divided into two good species, i. e. *P. ussuriensis* (BREM.) and *P. cultralis* (STGR.) differing distinctly from each other in the shape of the wings. In the latter species there may be distinguished a separate ssp. *amurensis* (ROM.). In the genital organs the differences between these forms are not so distinctly marked.

Among the females of the genus *Paratalanta* MEYR. distinct differences are also marked in various forms. It is evident

from the original descriptions quoted above that there have hitherto been known the female of *P. cultralis cultralis* (STGR.) discovered by LEDERER, and called by him *Botys labutonalis* LED., and the female of *P. cultralis amurensis* (ROM.) mentioned by ROMANOFF. The female of *P. ussuralis* (BREM.) was unknown.

In S. TOLL's material from Manchuria there are at least three types of female belonging to the genus *Paratalanta* MEYR. The first form belongs to *P. ussuralis* (BREM.). The second, rarer, has longer and narrower wings, and a pattern corresponding to that of *P. cultralis amurensis* (ROM.). The third form belongs undoubtedly to a new species, not hitherto described, to which we have given the name *Paratalanta stachialis* sp. nov. Its description is as follows:

***Paratalanta stachialis* n. spec.**

[Plate XVII fig. j]

Fore wings of female much narrower than in *P. cultralis* (STGR.), outer margin more oblique, slightly curved below the apex. Background straw-coloured, a little darker on the costa. There is no dust of dark scales on the costa at all. Pattern on both wings greyish-brown, with a light violet shade. Antemedial line demarcating basal field of wing broken outwards at the vein cu more strongly than in other species of the genus *Paratalanta* MEYR. Postmedial line slightly undulated, broken at right angles between the veins cu₂ and m₃, running inward along vein m₃, touching lower margin of reniform spot on the transversal vein. This spot is much narrower than in other species of *Paratalanta* MEYR. Annular spot visible only as a small dot. Marginal line very broad, forming an inward prominence on the vein cu₁. The vein cu₁ in one of the two paratypes (Hsiaoling, 17 VIII 1939) from the collection of one of the authors (R. J. WOJTUSIAK), is marked greyish-brown and forms a junction between the marginal line and the postmedial line. In the dark marginal line, close to the apex, a fairly large spot of the same colour as the background of the wings. The specimen caught on 17 Aug. 1939 has also a row of crescent-

tic spots between the veins just at the outer margin. These spots are of the same colour as the apical spot. The dark marginal line cut by veins sown with light-coloured scales. The bright pattern on the dark background of the marginal line just described is not distinct in the holotype. It is altogether lacking in the specimen caught on Aug. 22.

Hind wings comparatively narrower than in *Paratalanta cultralis* (STGR.). Outer margin more curved. Background brighter than in the fore wings, as in *P. c. amurensis* (ROM.). Medial line broader than in the other species of the genus *Paratalanta* MEYR., almost quite straight. Dark marginal line, a little narrower than in *Paratalanta cultralis* (STGR.), becomes gradually narrower and disappears at the vein an. Just on the outer margin between the veins are some small spots of the same colour as the background of the wings. The spots in the specimen of 22 Aug. 1939 are indistinct.

Lower side of both wings lighter, its pattern corresponding to that of the upper side, but less distinct. Palpi rusty-brown white hairs below only at their base. Spread of fore wings 30—31 mm.

Subgenital plate of the genital organs of the female similar in structure to that of *P. c. cultralis* (STGR.). Introitus vaginae in the shape of a centrally constricted sac (Pl. XIX, a), lacking the bunch of spines on the caudal margin characteristic of other species of the genus *Paratalanta* MEYR. Signum of peculiar shape.

It follows that this new species differs more from the other species of the genus *Paratalanta* MEYR. which form a closely related group.

The holotype, a female caught on 18 Aug. 1939, and two paratypes, also females caught on 17 and 22 Aug. 1939, are in the collection of S. TOLL. One paratype, a female, caught on 22 Aug. 1939, is in the collection of R. J. WOJTUSIAK. All specimens were caught near the railway station at Hsiaoling, in the province of Kirin.

The presence in the material mentioned above of females closely corresponding to *Paratalanta cultralis cultralis* (STGR.) which has so far been known only from the Near East, is most striking. To explain this the following assumptions are advanced.

This may indeed be a new station of *P. cultralis cultralis* (STGR.) which thus might occur in the Far as well as the Near East. The resemblance of the specimens from Manchuria to LEDERER's drawing and original description supports this supposition. Some slight differences will be discussed later.

As a second and more concrete possibility, it may be assumed that specimens of females, resembling *P. cultralis cultralis* (STGR.) in external appearance, are in reality females of *P. ussurialis* (BREM.), of which no female has so far been known. The great resemblance between the Manchurian females and the males of *P. ussurialis* (BREM.), and particularly the shape of the wings which are wider and shorter than in *P. cultralis amurensis* (ROM.) argues in favour of this. Their pattern and colouring is quite similar to those of the males of *P. ussurialis* (BREM.). It is particularly characteristic that the inner border of the marginal line of the fore wings shows a distinct indentation on the veins, while in *P. cultralis* (STGR.) it is smooth, much as in the males. The colour of the marginal line is also more brownish than in *P. cultralis amurensis* (ROM.), which is of a more greyish shade. The fringe is also straw-coloured, approaching the colour of the background of the wings, while in *P. cultralis amurensis* (ROM.) it is darker and brownish. Thus, in the material of one of us (S. TOLL) there were females of both *P. cultralis amurensis* (ROM.) and of *P. ussurialis* (BREM.) which had not yet been described. The latter show a considerable resemblance to the males of *P. cultralis cultralis* (STGR.) from the Near East.

The latter fact is especially interesting. The males of *P. cultralis cultralis* (STGR.) from the Near East and the males of *P. cultralis amurensis* (ROM.) from the Far East show a great resemblance in the shape and pattern of the wings, but differ distinctly from the males of *P. ussurialis* (BREM.). Among the females the contrary seems to occur. The females of *P. ussurialis* (BREM.) seem to have a greater resemblance to the females of *P. cultralis cultralis* (STGR.), while the females of *P. cultralis amurensis* (ROM.) seem to differ more. If it is accepted that the females resemble the males in their appearance, it might be suspected that the female described by LEDERER from the Near East as *Botys labutonalis* LED. belongs to some

other form, the males of which approach *P. ussurialis* (BREM.), but which is widely separated from the latter species by its occurrence in the further limits of Asia. In such a case the female of *P. cultralis cultralis* (STGR.) would not be known. From a theoretical point of view it should resemble the females of *P. cultralis amurensis* (ROM.) in appearance, i. e. it should have more elongated wings and the corresponding characters of the pattern similar to those of the males. This problem cannot be solved at present, for lack of more abundant material from the Near as well as from the Far East and from the mountain ranges of Central Asia. Therefore, for practical reasons only, it must be accepted that the Manchurian females with shorter and broader wings belong to *P. ussurialis* (BREM.), and the females with narrower and longer wings to *P. cultralis amurensis* (ROM.), and will be considered as such in this paper in further descriptions and comparisons of features characteristic of the various forms of females of the genus *Paratalanta* MEYR.

The differences in size and shape of the wings in the female forms at our disposal are shown in photographs (Pl. XVII, g, h, i, j) and have been represented separately on Pl. XX, b. It is evident that the relatively shortest fore wings are to be found in *Paratalanta ussurialis* (BREM.), and the longest in *P. cultralis amurensis* (ROM.). These conditions agree perfectly with the corresponding data already described in males. *P. cultralis cultralis* (STGR.) resembles the female of *P. ussurialis* (BREM.) in the shape of its wings. The female of the new species described above under the name of *Paratalanta stachialis* sp. nov., shows the comparatively longest fore wings. The relation of the breadth of the fore wings, measured from the anal angle of the wing perpendicularly to the anterior margin, to the length, measured from the base of the wing to its apex, is for the various forms as follows:

<i>Paratalanta stachialis</i> sp. nov.	16,0 : 6	= 2,66
„ <i>cultralis amurensis</i> (ROM.)	15,5 : 6	= 2,58
„ „ <i>cultralis</i> (STGR.)	15,5 : 7	= 2,21
„ <i>ussurialis</i> (BREM.)	13,5 : 6,3	= 2,13

The angles formed by a line drawn from the apex of the wing to the fore part of the base and from the apex of the wing to its anal angle amount to:

<i>Paratalanta stachialis</i> sp. nov.	38°
„ <i>cultralis amurensis</i> (ROM.)	41°
„ „ <i>cultralis</i> (STGR.)	50°
„ <i>ussurialis</i> (BREM.)	50,3°

According to the former comparison the narrowest wings are found in *P. stachialis* sp. nov., the broadest in *P. ussurialis* (BREM.). *P. cultralis cultralis* (STGR.) approaches *P. ussurialis* (BREM.). The hind wings show corresponding proportions in relation to the fore wings, much as in the males.

As regards colour, only small differences exist between these species. In all forms there is, on a straw-coloured background, a brownish pattern which in *P. stachialis* sp. nov. has a more greyish shade with a certain violet reflection. More distinct differences are seen in the pattern, especially of the fore wings. In *P. cultralis amurensis* (ROM.) the marginal band of the fore wings is fairly bright and uniformly coloured over its whole breadth. Delicate lightenings in colour appear only at the base of the fringe and on the veins. The proximal margin is fairly smooth and almost parallel to the wing margin, except for the broadening in the apical part, which is common to all species. In *P. cultralis cultralis* (STGR.) the marginal band shows the same course, but its outer half is much lighter except for the darkening over the veins. In *P. ussurialis* (BREM.) the marginal band becomes narrower dorsal and shows distinct centrad notches between the veins. In *P. stachialis* sp. nov. the marginal band just out by the vein and broadens towards the centre of the wing, afterwards narrowing dorsad. In consequence there appears a rounded notch in the brownish-grey shading towards the apex. This distinguishes this species from all the rest. The anterior margin of the fore wings is proximally powdered with intense brown. This darkening becomes gradually lighter towards the tip of the wing, and as a lighter streak it overlaps the apical part of the marginal line. At the apex a distinct brightening of the greyish-brown background of the line is visible.

A fine medial line is distinctly marked on the fore wings in all species. In the vicinity of the veins cu_1 and cu_2 it takes a markedly acute bend inwards and forms lesser bends at the veins r_5 and an. In *P. stachialis* sp. nov. the largest bend occurs at vein m_3 , and consequently the postmedial line runs almost parallel to the inner border of the marginal line. The terminal part of the medial line from the vein cu_2 to the inner margin of the fore wing is in *P. cultralis* (STGR.) almost parallel to the outer margin of the wing. In *P. ussurialis* (BREM.) it is vertical to the posterior margin of the wing. In *P. stachialis* sp. nov. its course is intermediate.

The fine basal line on the fore wings takes almost the same course in all the species. At vein cu forming the posterior boundary of the central cell, it shows a slight angle curved outwards. In all species there exists a reniform spot of the same colour as the rest of the pattern. In *P. cultralis* (STGR.) and *P. ussurialis* (BREM.) it is accompanied by a darkening of the anterior margin of the wing, in *P. stachialis* sp. nov. by a curve centrad of the postmedial line. In the middle of the central cell there exists in all species a small brown point corresponding to the ring spot.

On the hind wings the marginal line is also the broadest in both forms of *P. cultralis* (STGR.) and is of uniform width along its whole length. In *P. cultralis amurensis* (ROM.) it is also uniformly coloured except for a delicate lightening at the base of the fringe, in *P. cultralis cultralis* (STGR.) its outer half is much lighter, as on the fore wings. In all other species it becomes increasingly narrow towards the rear, though in *P. stachialis* sp. nov. it is still fairly broad. It is least marked in *P. ussurialis* (BREM.).

The medial line on the hind wings shows a distinct bend outwards in the vicinity of the veins m_2 and m_3 , and a sharp point directed centrad on the vein cu_1 . Owing to this there occurs a shifting of the posterior part of the medial line proximally, so that it seems to form a prolongation of the basal or antemedial line of the fore wings. In *P. stachialis* sp. nov. the whole course of the medial line runs parallel to the margin line without any bends.

The genital organs of the females of the genus *Paratalanta* MEYR. show more distinct differences in particular species than the genital organs in the males (Pl. XIX, a, b, c, d).

Suitable preparations have been made by one of the authors (S. TOLL) from specimens of *P. cultralis amurensis* (ROM.), *P. ussuriensis* (BREM.) and *P. stachialis* sp. nov. Unfortunately, nothing is known of the genital apparatus of the female of *P. cultralis cultralis* (STGR.). Differences between the forms studied may be noticed chiefly in the introitus vaginae and in the signum of the bursa copulatrix. In *P. ussuriensis* (BREM.) the introitus vaginae is goblet-shaped, with the broader part directed backwards, and the narrower forwards. On either side of the expansion there are two upright, tongue-like plates covered with long bristles caudad. In *P. cultralis amurensis* (ROM.) the introitus vaginae is a sort of square cavity, also exhibiting caudally two plates smaller than in the preceding species and also covered with rather finer bristles. Anteriorly, however, the introitus vaginae shows distinct digit-like chitinous processes directed laterally. In *P. stachialis* sp. nov. the introitus vaginae has also the shape of a short cylinder distinctly constricted in its middle part, without any protuberances with bristles on the caudal side. The signum in *P. ussuriensis* (BREM.) and *P. cultralis amurensis* (ROM.) shows a kind of a four-armed star with two shorter and two longer arms, covered with small knot-like protuberances. In the latter species the arms of the star show lesser differences in length. In *P. stachialis* sp. nov. the signum is divided into three arms, of which the two basal ones are broader than the third, which is shaped like a long, sharp point. The surface of the signum is also covered by small knotty cusps.

All the forms of the genus *Paratalanta* MEYR. discussed above represent an interesting group which has been characterized by HAMPSON, as mentioned already. Their characteristics are best illustrated by the accompanying figures drawn from nature by the authors. To this description it may be added that the first pair of legs are covered with a thick coat of scales (Pl. XX, h), the femur of the second pair of legs with a brush of long hairs (Pl. XX, i) and the femur of the third pair of legs is terminated by two spines differing in length (Pl. XX, g).

Behind the head there is a collar of broad scales (Pl. XX, c). The veins shown in Pl. XX, f, agree with fig. 147 in HAMPSON'S publication.

A separate discussion should be devoted to the geographical distribution of the forms of the genus *Paratalanta* MEYR. as analysed above. As has already been mentioned, *P. ussurialis* (BREM.) has been described from the region of the Amur, where the river Ema enters the Ussuri. *P. cultralis cultralis* (STGR.) has been described from the Caucasus, without any very precise data, but probably from the southern slopes of this high mountain range. The female of this species came from the vicinity of Astrabad in Persia. ROMANOFF (1887) described his *P. cultralis amurensis* (ROM.) from the Amur district. ZERNY (1914) considered *P. ussurialis* (BREM.) to be limited in its distribution to Eastern Asia, while *P. cultralis cultralis* (STGR.) was supposed to occur in its typical form in Northern Persia, Armenia and in the Altai, and *P. cultralis amurensis* (ROM.) in the region of the Amur and in Japan.

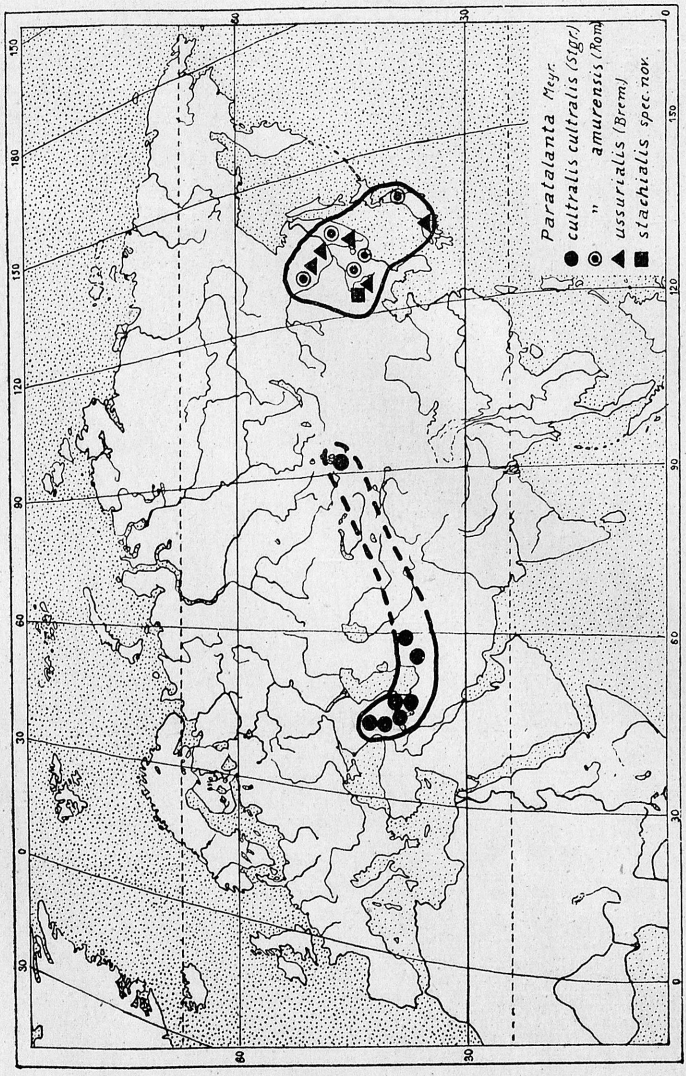
In our material from Manchuria, prov. Kirin, *P. ussurialis* (BREM.) as well as *P. cultralis amurensis* (ROM.) and also *P. stachialis* sp. nov. are represented. In the Budapest Natural History Museum there are 3 males and 1 female of *P. ussurialis* (BREM.) from Eastern Siberia (Amur, Chabarowsk, leg. I. BENE and Zg. IZRÁK). One of these males has a very broad marginal band. There is also in the collection of this Museum 1 male from Chabarowsk (leg. J. BENE) which should be referred without any doubt to *P. cultralis amurensis* (ROM.). In the collection of the Warsaw Zoological Institute there is 1 female and 1 male belonging to *P. ussurialis* (BREM.), and 1 male and 1 female of *P. cultralis amurensis* (ROM.). These were caught in the region of the Amur, and in Baranowka, Eastern Siberia.

On the basis of all these data it may be seen that there is a striking disjunction in the distribution of the species belonging to the genus *Paratalanta* MEYR. In the Far East (Eastern Siberia, Amur, Ussuri, Manchuria, Japan) a very great number of forms may be observed, namely, *P. ussurialis* (BREM.), *P. cultralis amurensis* (ROM.) and *P. stachialis* sp. nov. (Mape on page 299). In the Near East and in the Altai there occurs only one

species, *P. cultralis cultralis* (STGR.). The specimen caught by one of the authors (R. J. WOJTUSIAK) in the Caucasus comes from the northern slopes of this mountain chain; thus the range of this species and also of the genus extends to that part of Europe adjacent to the Near East. It is not out of the question that in the mountains of Central Asia, beyond the Altai, there exist some representatives of this genus which might form a more continuous connection between the eastern and western parts of Asia. The boundary between *P. cultralis cultralis* (STGR.) and the group of forms from the Far East should then lie between the Altai and Eastern Asia. The lack of appropriate data results from the inadequate exploration of the area of Central Asia as regards lepidopterology, and in particular the *Pyrilidae*. It is possible that suitable material may be found in some of the larger museums, but so far they have not yet been examined.

Paratalanta cultralis cultralis (STGR.) found by one of the authors in the Caucasus, occurs there in mesophytic deciduous forests with a rich undergrowth in which the following plant forms are found: *Fagus orientalis* LIPSKY, attaining a height of 40 m, *Carpinus betulus* SCOP., *Acer platanoides* L., *Fraxinus excelsior* L., *Ostrya carpinifolia* SCOP., *Prunus avium* L., *Quercus sessiliflora* WILLD., *Tilia caucasica* RUPR., or *Ulmus elliptica* v. *pubescens* MEDW. The undergrowth is composed by *Acer campestre* L., *A. tataricum* L., *Cornus australis* C. A. MEY., *Corylus avellana* L., *Crataegus monogyna* JACQU. and also of creepers of the genera: *Hablixia* M. B., *Humulus* L., *Lonicera* L. and *Tanacetum* L. (WIŚNIEWSKI T. 1936). In the glades in the forest or on its borders grow large specimens of *Urtica dioica* L. exceeding the height of a man, and giant *Umbelliferae*, *Heracleum Mantegazzianum* LEV. et SOMM. Our specimen was caught in such a glade, overgrown with a thicket of nettles twisted together with hop (*Humulus lupulus* L.).

ROMANOFF also gives mountain forests in the vicinity of streams as places where *Paratalanta cultralis* (STGR.) occurs. From the distribution map of the representatives of the genus *Paratalanta* MEYR., it is evident that they occur in regions covered with a flora which is regarded by botanists as containing many tertiary relicts. The disjunction in the distribu-



Map of distribution of particular forms of the genus *Paratalanta* MEYR.

tion of the forms belonging to this genus would approximately correspond to the Holarctic or Arctic tertiary disjunction of the flora (SZAFER, 1949). According to the division which we have accepted for our characterization of the zoogeographical elements of the macrolepidopterological fauna of the Caucasus (WOJTUSIAK and NIESIOŁOWSKI, 1947) *Paratalanta* MEYR. would belong to the East Asiatic mountain elements. The majority of forms belonging to this genus are met with in the regions of East Asia. It may be accepted therefore that this is the centre of their distribution. In the Altai and in the Near East only one form was found, which has already undergone certain morphological changes resulting in the formation of a separate subspecies *P. cultralis cultralis* (STGR.), regarded as the typical subspecies only on the ground of priority in description. Whether the genus *Paratalanta* MEYR. consists of a group of forms representing tertiary relicts, or whether these are much younger forms disjuncted as late as the Pleistocene epoch, cannot for the time being be ascertained because our knowledge of the lepidopterological fauna of Central Asia is as yet insufficient.

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STRESZCZENIE

Autorzy na podstawie materiałów własnych oraz z kilku muzeów przyrodniczych europejskich dokonali rewizji wszystkich form należących do rodzaju *Paratalanta* MEYR. Dzięki zanalizowaniu oryginalnych opisów oraz porównawczemu zbadaniu morfologii, ubarwienia i budowy narządów rozrodczych wyróżniono w rodzaju *Paratalanta* MEYR. dwa gatunki: *P. ussurialis* (BREM.) i *P. cultralis cultralis* (STGR.) oraz jeden podgatunek *P. cultralis amurensis* (ROM.). Ponadto na podstawie okazów ♀♀ pochodzących z Mandżurii opisano nowy gatunek *Paratalanta stachialis* sp. nov. Przeważna część z tych form, a mianowicie: *P. ussurialis* (BREM.), *P. stachialis* sp. nov. i *P. cultralis amurensis* (ROM.) występuje na Dalekim Wschodzie (Syberia Wschodnia, Amur, Ussuri, Mandżuria, Japonia). Na podstawie tego przyjmują autorzy, że centrum rozprzestrzenienia tego rodzaju znajduje się w Azji Wschodniej. Tylko jedna forma *P. cultralis cultralis* (ROM.) występuje na Bliskim Wschodzie (Kaukaz, Armenia, Transkaspia, Persja) i w Altaju. Autorzy uważają, że jest to podgatunek powstały w tych obszarach na skutek długotrwałego oddzielenia od centrum wschodnio-azjatyckiego. Uważany jest on za formę typową jedynie na podstawie pierwszeństwa w opisie. Ponieważ jeden z autorów (WOJTUSIAK) stwierdził jego występowanie na północnych stokach Kaukazu, przeto zasięg rodzaju *Paratalanta* MEYR. należy rozszerzyć także na część Europy południowo-wschodniej przylegającą do Bliskiego Wschodu azjatyckiego. Przedstawiciele rodzaju *Paratalanta* MEYR. występują na polanach w mezofitycznych lasach o dużej ilości re-

ликтowych trzeciorzędowych gatunków roślin. Autorzy zaliczają wszystkie formy należące do tego rodzaju do grupy elementów górskich wschodnio-azjatyckich.

РЕЗЮМЕ

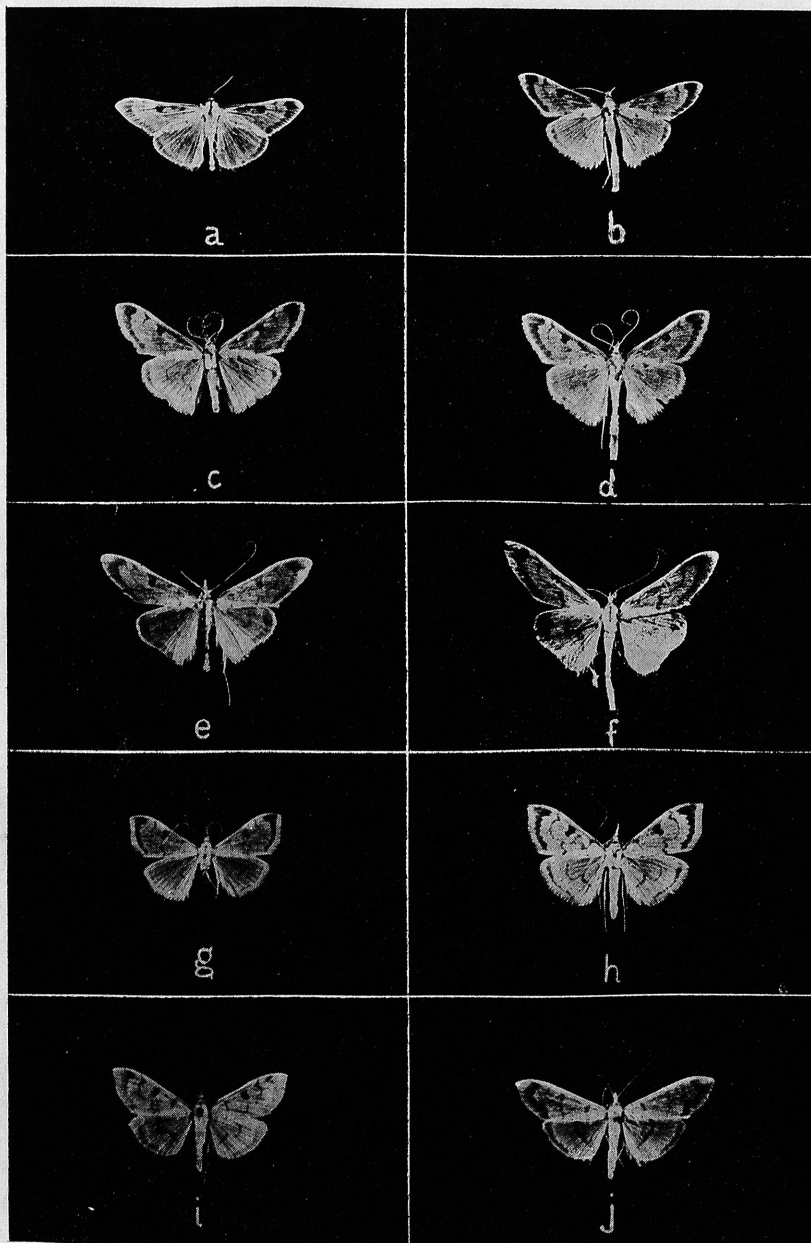
Авторы, основываясь на соотвенных материалах и на материалах некоторых естественно исторических музеев, провели ревизию всех видов принадлежащих к роду *Paratalanta* Меур. Благодаря анализу первичных описаний и сравнению морфологии, окраски и строения генительных аппаратов они установили, что к роду *Paratalanta* Меур. принадлежат всего два вида: *P. ussuriensis* (BREM) и *P. cultralis cultralis* (STGR.) и один подвид *P. cultralis amurensis* (ROM.). Сверх того, по четырем самкам, взятыми в Манжурии, авторы описали новый вид: *Paratalanta stachialis* sp. nov.

Большая часть этих форм, а именно: *P. ussuriensis* (BREM), *P. stachialis* sp. nov. и *P. cultralis amurensis* (ROM.) распространены на Дальнем Востоке (Восточная Сибирь, Приамурский и Уссурийский Край, Манжурия, Япония). На основании этого, авторы принимают за центр распространения рода *Paratalanta* Меур. Восточную Азию. Только один вид *P. cultralis cultralis* (STGR.) найден на Ближнем Востоке (Кавказ, Армения, Закаспийский Край, Персия) и на Алтае. Авторы полагают, что подвид этот образовался в вышеупомянутом ареале под влиянием продолжительной изоляции от восточно-азиатского центра. Его считают типичной формой исключительно на основании первенства описания. Основываясь на том, что один из авторов (Войтусяк) нашел *P. cultralis cultralis* (STGR.) на северных склонах Кавказа, ареал распространения рода *Paratalanta* Меур. следует расширить так же на часть юговосточной Европы, прилегающую к Ближнему Востоку Азии. Представители рода *Paratalanta* Меур. встречаются на полянах в мезофитных лесах, изобилующих в реликтные третичные виды растений. Авторы причисляют все виды, принадлежащие к роду *Paratalanta* Меур. к группе элементов горных, населяющих Восточную Азию.

PLATES

Plate XVII.

- a) *Paratalanta ussurialis* (BREM.), ♂, Amur. leg. RADDE, coll. WOJTUSIAK.
- b) *Paratalanta ussurialis* (BREM.), ♂, Amur. leg. RADDE, coll. WOJTUSIAK.
- c) *Paratalanta ussurialis* (BREM.), ♂, Manchuria, Kaolingsu Station, prov. Kirin. 22. VII. 1940. ex coll. TOLL. in coll. WOJTUSIAK.
- d) *Paratalanta ussurialis* BREM., ♂, ex coll. TOLL.
- e) *Paratalanta cultralis cultralis* (STGR.) ♂, Caucasus, Kara-su 1000 m, 15. VIII. 1935. Col. WOJTUSIAK.
- f) *Paratalanta cultralis amurensis* (ROM.) ♂, Manchuria, Kaolingsu Station, prov. Kirin. 3. VIII. 1940. coll. TOLL.
- g) *Paratalanta ussurialis* (BREM.) ♀, Manchuria, Kaolingsu Station, prov. Kirin. 1. VIII. 1940. coll. TOLL.
- h) *Paratalanta ussurialis* (BREM.), ♀, Manchuria, Kaolingsu Station, prov. Kirin. 26. VII. 1940. coll. TOLL.
- i) *Paratalanta cultralis amurensis* (ROM.) ♀, Manchuria, Hsiaoling, prov. Kirin. 17. VIII. 1939. coll. TOLL.
- j) *Paratalanta stachialis* spec. nov. ♀, Manchuria, Hsiaoling, prov. Kirin. 22. VIII. 1939. coll. TOLL.

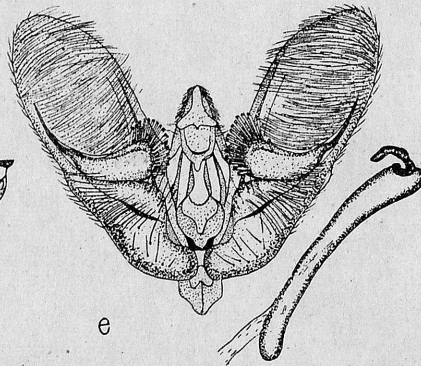
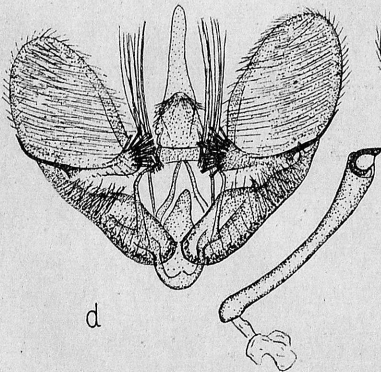
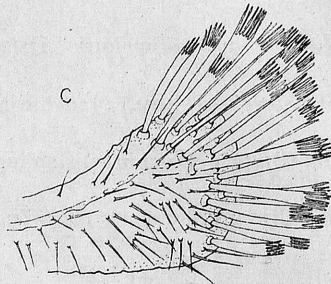
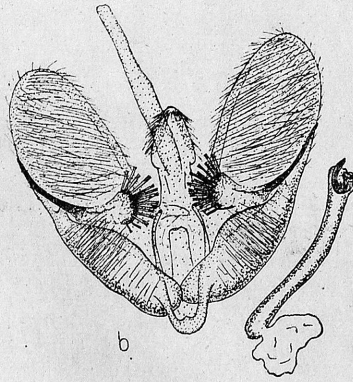
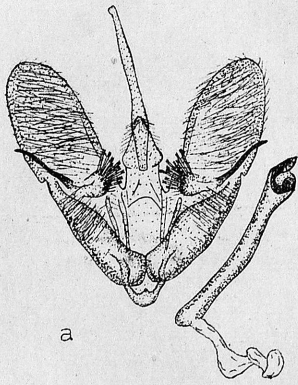


H. Franckiewicz phot.
S. Toll i R. J. Wojtusiak

Plate XVIII

Genital organs of ♂♂.

- a) *Paratalanta ussurialis* (BREM.) Manchuria, Kaolingsu Station, prov. Kirin. 22. VII. 1940.
- b) *Paratalanta ussurialis* (BREM.) Amur.
- c) Ampulla from the genital organs of ♂ of *Paratalanta cultralis cultralis* (STGR.)
- d) *Paratalanta cultralis cultralis* (STGR.) Caucasus, Kara-su 1000 m. 15. VIII. 1935.
- e) *Paratalanta cultralis amurensis* (ROM.) Manchuria, Kaolingsu Station. prov. Kirin. 9. VIII. 1940.

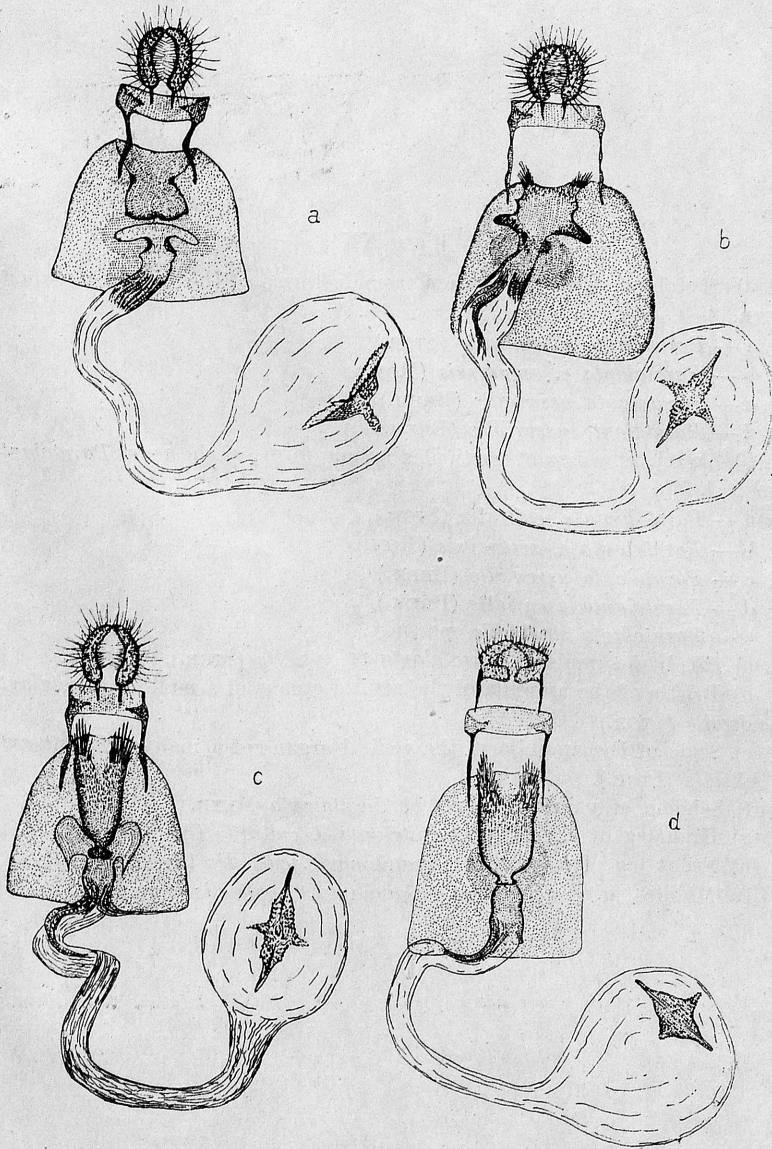


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Plate XIX

Genital organs of ♀♀.

- a) *Paratalanta stachialis* spec. nov. Manchuria, Hsiaoling, prov. Kirin. 22. VIII. 1939.
- b) *Paratalanta cultralis amurensis* (ROM.) Manchuria, Hsiaoling, prov. Kirin. 5. VIII. 1939.
- c) *Paratalanta ussurialis* (BREM.) Manchuria, Kaolingsu Station, prov. Kirin. 2. VIII. 1940.
- d) *Paratalanta ussurialis* (BREM.) Manchuria, Kaolingsu Station, prov. Kirin. 1. VIII. 1940.



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Plate XX

a) Sketch of wings of particular male forms of the genus *Paratalanta* MEYR.

a — *Paratalanta c. cultralis* (STGR.)

b — *Paratalanta c. amurensis* (ROM.)

c — *Paratalanta ussurialis* (BREM.)

d — *Paratalanta ussurialis* (BREM.)

b) Sketch of wings of particular female forms of the genus *Paratalanta* MEYR.

a — *Paratalanta c. cultralis* (STGR.)

b — *Paratalanta c. amurensis* (ROM.)

c — *Paratalanta ussurialis* (BREM.)

d — *Paratalanta ussurialis* (BREM.)

e — *Paratalanta stachialis* spec-nov.

c) Head of a male of *Paratalanta c. cultralis* (STGR.).

d) Bristle of the ampulla of the genital organs of a male of *Paratalanta c. cultralis* (STGR.)

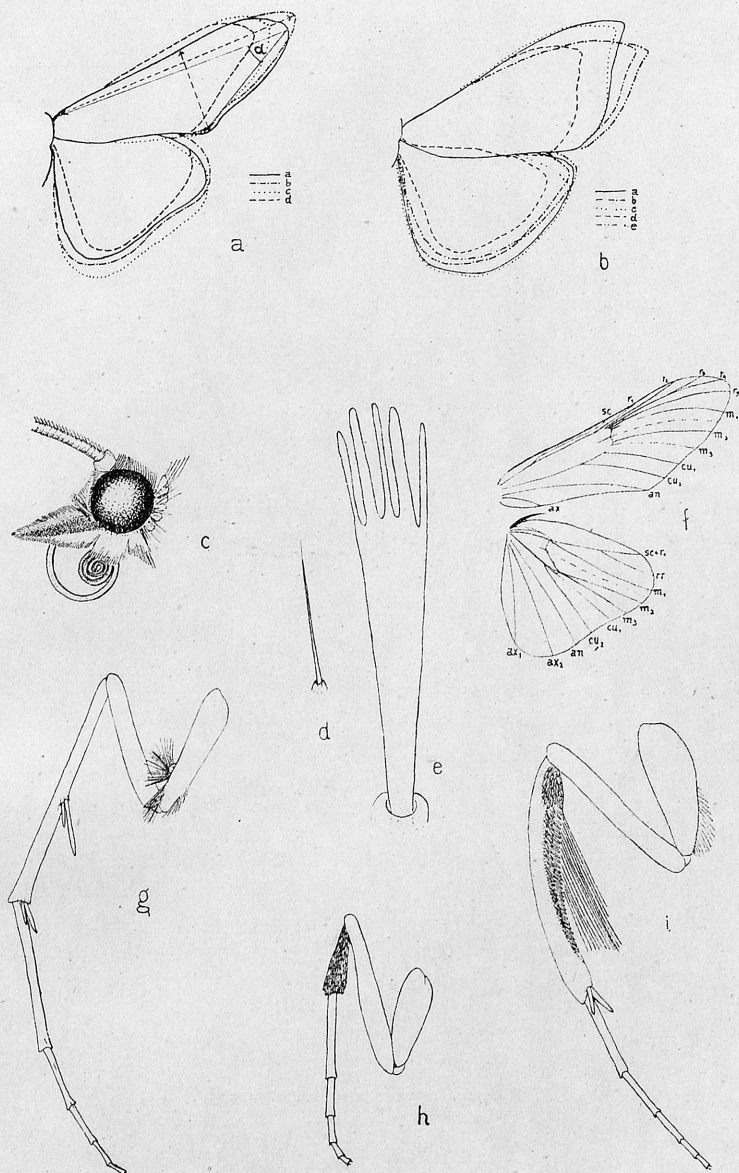
e) Scale of the ampulla of the genital organs of a male of *Paratalanta c. cultralis* (STGR.).

f) Scheme of veins on wings of *Paratalanta* MEYR.

g) Hind leg of a male of *Paratalanta c. cultralis* (STGR.)

h) Front leg of a male of *Paratalanta c. cultralis* (STGR.)

i) Middle leg of a male of *Paratalanta c. cultralis* (STGR.)



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